ACC.11
60th Annual Scientific Session & Expo

E1145
JACC April 5, 2011
Volume 57, Issue 14

MYOCARDIAL ISCHEMIA AND INFARCTION

COULD RETINAL IMAGING PROVIDE A SIMPLE, INEXPENSIVE, NONINVASIVE INDEX FOR CORONARY MICROVASCULAR FUNCTION IN WOMEN WITH CHEST PAIN AND NONOBSTRUCTIVE CORONARY ARTERY DISEASE? AN ANCILLARY PILOT STUDY FROM THE NHLBI-SPONSORED WOMEN'S ISCHEMIA SYNDROME EVALUATION (WISE-ARIC)

ACC Poster Contributions
Ernest N. Morial Convention Center, Hall F
Monday, April 04, 2011, 9:30 a.m.-10:15 a.m.

Session Title: Stable Ischemic Syndrome: Invasive Insights I
Abstract Category: 5. Stable Ischemic Syndrome
Session-Poster Board Number: 1180-323

Authors: *Eileen M. Handberg, Xuerong Wen, Ronald Klein, R. David Anderson, Daniel F. Pauly, Sheryl F. Kelsey, C. Noel Bairey Merz, George Sopko, Anil Puri, Lola Xie, Carl J. Pepine, University of Florida, Gainesville, FL*

Background: The retinal vasculature offers a unique direct view of the microcirculation. Epidemiologic data from the Atherosclerosis Risk in Communities (ARIC) document that retinal arteriolar diameter predicts adverse cardiovascular disease (CVD) prognosis in women. Evidence of microvascular dysfunction (e.g., reduced coronary flow reserve, CFR) is associated with adverse CVD prognosis in the WISE. Thus, a noninvasive index of microvascular function would be a useful prognostic tool in women. Accordingly, we hypothesized that retinal microvascular measures would predict coronary microvascular function.

Methods: Vasoactive medications were held for 24-48 hours and non-mydriatic retinal images were taken on a sample of 72 women from the WISE with signs and symptoms of ischemia. Previously collected demographic, medical history, and coronary angiographic data including coronary flow reserve (CFR) to adenosine were included in these analyses. Retinal image and CFR measures were quantified by core labs masked to other patient data.

Results: Women enrolled had a mean age of 58 years; 86% were Caucasian, 70% postmenopausal; 60% had current HRT use, 14% history of diabetes, 49% dyslipidemia, and 46% hypertension. Their mean BMI was 30.3 kg/m2and mean systolic BP 124 mmHg. Mean CFR was 2.63 ± 0.51; mean central retinal arteriolar equivalent (CRAE), an index of arteriolar size, was 158 ± 17 μm; mean central retinal venule equivalent (CRVE) was 223 ± 24 μm. Mean CRAE for WISE women places them in the lowest risk quartile for women in ARIC. In the WISE, women with CFR >2.32 had very low risk for adverse outcomes over 5.4 years follow-up (<2%/year), and in this cohort we observed a strong positive correlation between CFR and CRAE (r= 0.42, 95% CI 0.16, 0.63, p=0.018).

Conclusions: Noninvasive retinal microvascular measures appear to predict normal coronary microvascular function among women with signs and symptoms of ischemia. Further studies are warranted to confirm if this negative predictive value for risk persists in large prospective cohorts.